

ENVIRONMENTAL IMPACT ASSESSMENT

Development projects in the past were undertaken without any consideration to their environmental consequences. As a result, rivers and lakes got polluted, air pollution reached at threatening level and piling of industrial wastes resulted in land degradation. In view of the colossal damage to environment by developmental activities people are now concerned about the environmental impact of developmental projects. It is important to anticipate the likely environmental problems and threats that may arise out of the proposed developmental activities and human actions. Such anticipation is termed “Environmental Impact Assessment” (EIA).

Environmental Impact Assessment (EIA) is a tool which improves decision making and ensures that the project under construction is environmentally sound and within limits of the capacity of assimilation and regeneration capacities of the ecosystem. EIA enables the decision makers to analyze the effect of developmental activities on the environment. Environmental clearance of developmental projects is mandatory for the new projects.

Environmental Impact Assessment (EIA) is an activity designed to identify and predict the impact of a project on biogeophysical, chemical environment and on human health so as to recommend appropriate legislative measures, programs, and operational procedures to minimize the impact.

Objectives of environmental impact assessment are:

1. Examine and select the best from the project options available.
2. Risk assessment and predict significant environmental impact.
3. Provides a cost effective method to minimize the adverse impact of development projects.
4. Identify appropriate mitigation measures and include them in the project plan.
5. Address all possible factors such as short term and long term effects.
6. Consider sustainable aspects such as capacity for assimilation, carrying capacity, biodiversity protection.
7. Identify the environmental costs and benefits of the project to the community.

IMPORTANCE OF EIA IN ENVIRONMENTAL PROTECTION

Unfortunately industrial development has had adverse impact on the environment. Most of the developmental activities such as building of dams, roads, airports, industries, railway tracks, cities etc. use enormous amounts of natural resources as raw material and they may generate waste, which is disposed off into the environment. Waste disposal causes damage to air, soil and water, and brings about depletion of natural resources. The EIA aims to reduce the impacts of these projects on the environment, as shown in Figure 1.

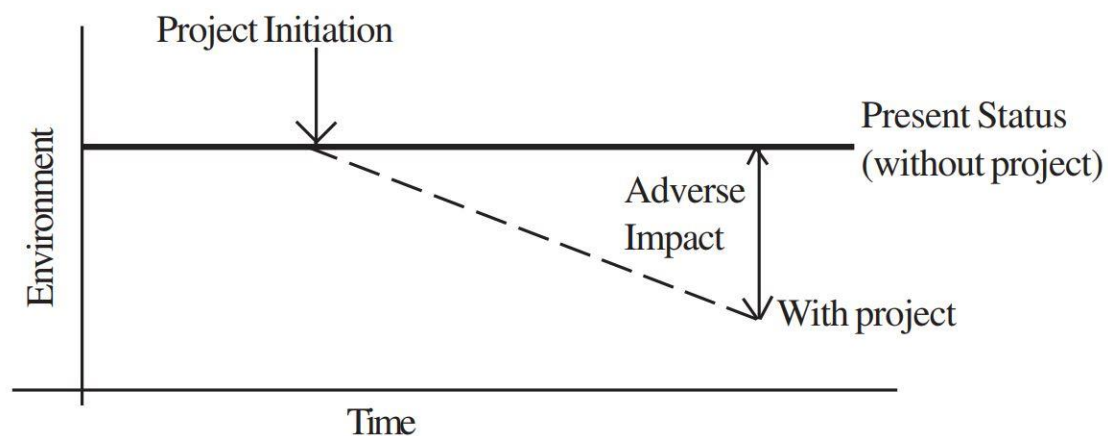


Figure1: (a) Anticipated environmental impact of developmental project.

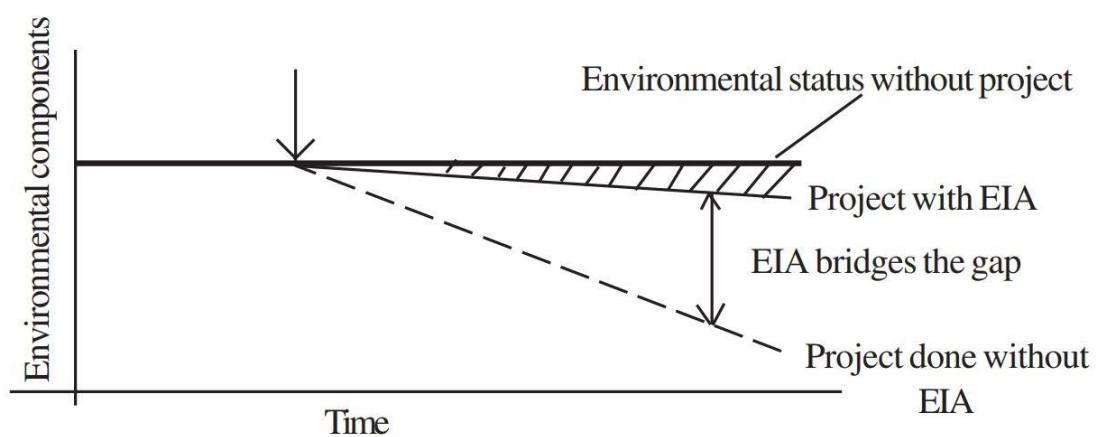


Figure1: (b) Environmental impact rectification after EIA.

Components of the Environmental Impact Assessment (EIA) Report:

An EIA report is a research-based document that may include the following information:

1. **Project name and owner.**
2. **Project description:** Its nature, objectives, assessment of its necessity, and its positive contributions to economic and social development, along with alternatives.
3. **Description of the existing environmental conditions** (climatic conditions, area description, geology, etc.).
4. **Identification of the project's environmental impacts** (both negative and positive environmental effects).
5. **Mitigation measures and environmental monitoring methods.**
6. **Conclusions and recommendations,** including suggestions to reduce negative environmental impacts.

The Environmental Impacts must be considered in the EIA Report

A- Natural or Physical Impacts:

This includes modifications to atmospheric properties, terrestrial and aquatic ecosystems, and energy use efficiency.

B- Social Impacts:

This includes changes in population characteristics, public health and safety, population activities, and community trends.

C- Aesthetic Impacts:

This refers to changes affecting the visual characteristics of mining areas, parks, nature reserves, and archaeological sites.

D- Economic Impacts:

This includes changes in land values and their various uses, employment, taxes, national income, energy prices, resource lifespan, and more.

Steps of EIA process

EIA involves the steps mentioned below:

- **Screening:** The project plan is screened for scale of investment, location and type of development and if the project needs statutory clearance.
- **Scoping:** The project's potential impacts, zone of impacts, mitigation possibilities and need for monitoring.
- **Collection of baseline data:** Baseline data is the environmental status of study area.
- **Impact prediction:** Positive and negative, reversible and irreversible and temporary and permanent impacts need to be predicted which presupposes a good understanding of the project by the assessment agency.
- **Mitigation measures and EIA report:** The EIA report should include the actions and steps for preventing, minimizing or by passing the impacts or else the level of compensation for probable environmental damage or loss.
- **Public hearing:** On completion of the EIA report, public and environmental groups living close to project site may be informed and consulted.
- **Decision making:** Impact Assessment (IA) Authority along with the experts consult the project-in-charge along with consultant to take the final decision, keeping mind EIA and EMP (Environment Management Plan).
- **Monitoring and implementation of environmental management plan:** The various phases of implementation of the project are monitored.
- **Risk assessment:** Inventory analysis and hazard probability and index also form part of EIA procedures.

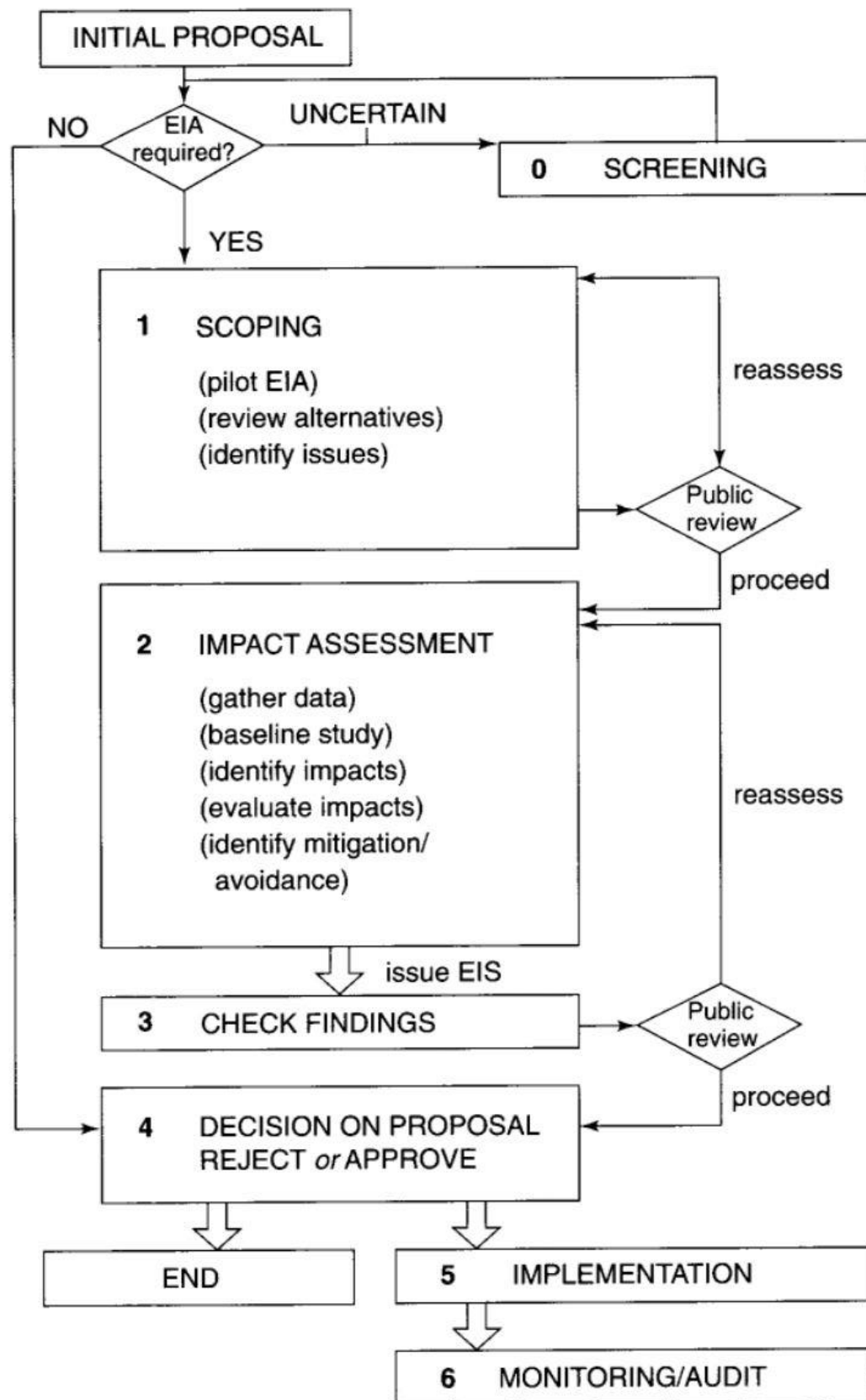


Figure3: The typical Steps of EIA process.

ENVIRONMENTAL COMPONENTS OF EIA

1. Air Environment:

- Air quality, wind speed, humidity, and emission levels.
- Impact of emissions on the area and pollution control requirements.

2. Noise:

- Existing and predicted noise levels, along with strategies to reduce noise pollution.

3. Water Environment:

- Quality and quantity of ground and surface water resources.
- Impact of the project on water resources.

4. Biological Environment:

- Flora and fauna in the area, potential damage from the project, and biological stress predictions.

5. Land Environment:

- Soil characteristics, land use, and drainage patterns, and potential impacts on historical monuments or heritage sites.

THE MAIN PARTICIPANTS OF EIA

1. Those who propose the project
2. The environmental consultant who prepare EIA on behalf of project proponent.
3. Public has the right to express their opinion.
4. Ministry of Environment and its departments.

ENVIRONMENTAL CLEARANCE

Environmental Clearance is the formal approval granted by the relevant environmental authorities, confirming that a proposed project or activity meets all environmental regulations and standards. It is typically issued after conducting an Environmental Impact Assessment (EIA) and ensures that the project will not cause significant harm to the environment. Environmental clearance may include conditions for mitigating environmental impacts during the project's implementation and operation.

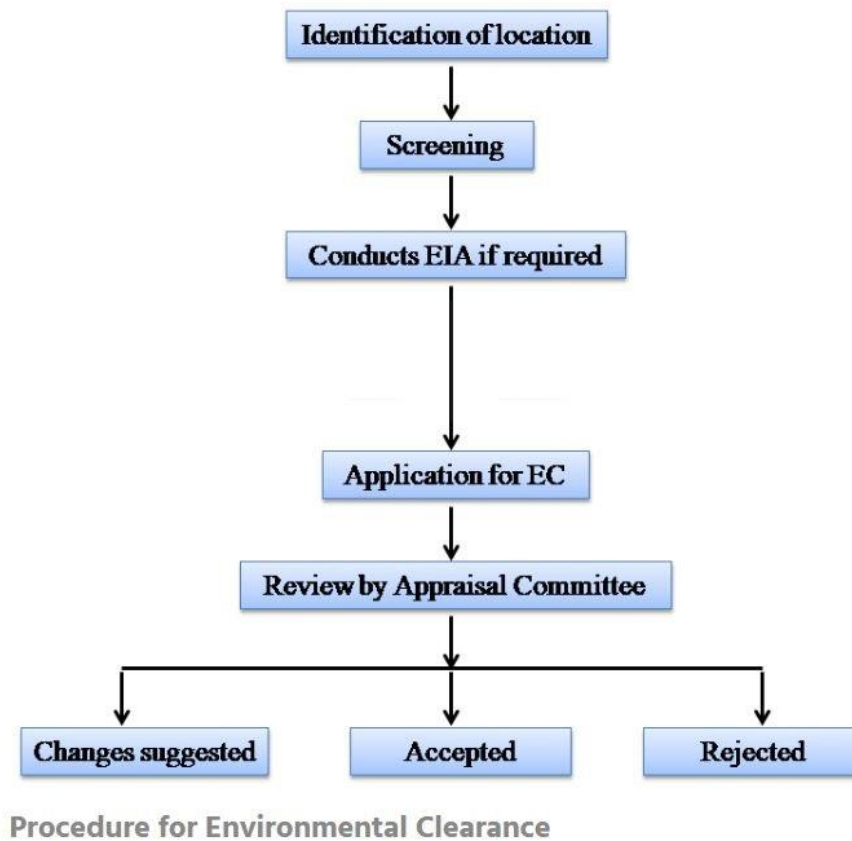


Figure2: Procedure for Environmental Clearance.

Strategic environmental assessment (SEA)

Strategic Environmental Assessment (SEA) is a process used to evaluate the environmental impacts of proposed policies, plans, or programs at a strategic level, ensuring that environmental considerations are integrated into decision-making before their implementation.

What is the difference between EIA and SEA?

EIA (Environmental Impact Assessment) aims to evaluate the environmental impacts of specific projects, and it is applied to individual projects such as building a factory or developing a road.

SEA (Strategic Environmental Assessment) aims to evaluate the environmental impacts of policies and strategic plans, and it is applied on a broader level such as governmental policies or regional plans.

Local and Global Environmental Laws and Regulations:

These laws aim to protect and improve the environment, including territorial waters, by reducing pollution and its effects on health, the environment, and natural resources. They also establish environmental policies and plans to achieve sustainable development.

Iraqi Environmental Laws and Regulations:

1. Regulation No. (25) of 1967: Maintenance of Rivers and Public Waters from Pollution.
2. Law No. (99) of 1980: Protection from Ionizing Radiation.
3. Public Health Law No. (89) of 1981 (Drinking Water).
4. Regulation No. (2) of 2001: Conservation of Water Resources.
5. Environmental Protection and Improvement Law No. (27) of 2009.
6. Environmental Standards for Project Establishment and Safety Monitoring Regulation No. (3) of 2011.
7. National Emission Standards for Activities and Operations Regulation No. (3) of 2012.
8. Other Iraqi environmental laws and regulations.

Global Environmental Laws and Regulations:

1. **EIA Legislation in the European Commission:**
 - EC Directive 85/337/EEC (effective 1988)
 - EC Directive 97/11/EC (effective 1999)
2. **U.S. Environmental Regulations:**
 - National Environmental Policy Act (NEPA, 1969).
 - Environmental Protection Agency (EPA, 1986).

Classification of industrial and development projects with environmental impact and environmental legislation:

Projects are classified according to their environmental impacts into three categories according to the assessment of Ministry of Environment, as follows:

Category (A): Projects that have significant negative environmental impacts and affect weak living organisms, and include resettlement or affect cultural heritage sites or a wide area that extends beyond work sites.

Category (B): Projects that have negative environmental impacts that cannot be reversed on living organisms and are specific to a specific site.

Category (C): Projects that have fewer negative environmental impacts.

Table: Environmental classification of projects.

Class A	Class B	Class C
Animal protein factories	Red and white meat farms	Fish breeding and propagation lakes
Major projects for food industries	Poultry projects	Food industries factories
Synthetic yarn manufacturing projects	Livestock breeding and propagation projects and animal shelters	Sewing, weaving and knitting factories
Major projects for pharmaceutical industries	Refrigerated food stores	Cosmetics production factories Perfumes
Tanning factories	Textile industries factories	Cement sales agencies
Cement factories	Craft factories for chemical industries	Stone and marble factories
Gypsum factories	Agricultural workshops	Glass forming or glass reuse industry
Brick factories	Metal smelting and casting factories	Fuel filling stations and gas sales
Pottery and ceramic ware industry	Ice production factories	Wood cutting factories and commercial businesses
Asbestos factories	Public sewage treatment plants	Washing and lubrication garages
Hazardous and toxic waste landfills	Chemical fertilizer stores	Sources of human-caused pollution
Major glass manufacturing factories	Craft factories for soap production	Wax factories
Electric power plants	Gypsum mold casting factories	Livestock sales yards
Municipal waste landfill sites	Leather preparation stores	Limited capacity dairy factories
Quarries	Liquid soap and shampoo factories	Private hospitals
	Car paint removal shops	

WHAT YOU HAVE LEARNT

- Developmental projects are an essential component of economic development and progress of a country.
- To prevent adverse impacts of developmental projects and programs on an environment, Environmental Impact Assessment or EIA is carried out before the implementation.
- While development is important, more important is environmental protection so that there is sustainable development and the environmental resources remain available to future generations.
- As a tool EIA improves decision making and ensures environmental safety.
- With EIA, a project is implemented with minimal damage to the environment.
- There are several legal bases of EIA as it not only appraises environmental health but also the social implications of planned developmental projects.
- The environmental components of EIA are associated with air, water, organisms, noise, and land.
- The participants in EIA are (i) developer who proposes the project, (ii) government departments which regulate the projects and (iii) the general public
- An effective EIA is focused, time bound, cost effective and reliable.
- **The evaluation of EIA is possible only when:** (a) There is public awareness of those responsible for protecting environmental quality and enforcement; (b) The EIA report and information contained therein is reliable.